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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,438	10/01/2003	Shinpei Nomura	H9876.0075/P075	5663

24998 7590 10/18/2007

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EXAMINER	
BROOME, SAID A	

ART UNIT	PAPER NUMBER
2628	

MAIL DATE	DELIVERY MODE
10/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,438	NOMURA, SHINPEI	
	Examiner	Art Unit	
	Said Broome	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,9-11,14-17,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,9-11,14-17,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/9/07 has been entered.

Response to Amendment

1. This office action is in response to an amendment filed on 8/9/2007.

2. Claims 1, 11 and 16 have been amended by the applicant.

3. Claims 9, 10, 14, 15, 17, 20 and 21 are original.

4. Claims 2-8, 12, 13, 18 and 19 have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake et al. (hereinafter "Aritake", US Patent 5,872,590) in view of Tatsuzawa (US Patent 6,441,844).

Regarding claims 1, 11, and 16, Aritake illustrates the method for displaying stereoscopic images of claim 1 (Figure 8), an apparatus for stereoscopic images (Figure 6), and storage medium for storing a program run in an apparatus for displaying stereoscopic images (Figure 13: element 62). Aritake teaches converting stored model object data of first objects, made of polygons having 3D coordinates (column 13 lines 50-54, column 31 line 51), which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate (column 10 lines 17-19), in which the perceived image is formed outside a stereoscopic viewable range, and the objects are therefore displayed as planar. Aritake also teaches converting stored model object data of second objects, made of polygons having 3D coordinates (column 13 lines 50-65, column 31 line 51), which are to be viewed in a stereoscopic view because of image formation positions being inside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate (column 10 lines 1-5) to parallax coordinate camera coordinate system data for right and left eyes respectively with their origins at parallax cameras for right and left eyes (column 10 lines 59-61), where left and right stereo images from particular viewpoints are generated using the three-dimensional model data to enable a stereoscopic parallax effect (column 5 lines 23-26), and the model data is thereby defined within a parallax camera coordinate system. Aritake also teaches that the left and right parallax data have predetermined parallax angles (column 10 lines 62-64), in which the cameras are placed at a predefined horizontal displacement. Therefore the parallax angles are also predetermined because the parallax angles contain a direct relationship to the distance between the cameras wherein the angles of each camera must be set to a certain equivalent angle based on the distance between the cameras in order to maintain the stereoscopic

effect, therefore by predetermining the distance between the cameras, the angles at which the cameras are needed to provide a stereoscopic view are predetermined as well. Aritake also teaches parallax camera coordinate system data for the right and left eye as image data for the right and left eye in a video memory (column 13 lines 65-67 – column 14 lines 1-2). However, Aritake fails to teach a reference camera coordinate system data with its origin at a reference camera, drawing reference camera coordinate system data for the right and left eye in a video memory and synthesizing the image data for right and left eyes. Tatsuzawa teaches a reference camera coordinate system data with its origin at a reference camera (column 4 lines 34-38, Figure 7: element M), drawing reference camera coordinate system data, or front video system data (Figure 7: element M) for the right and left eye in a video memory (column 2 lines 53-56), and synthesizing image data for the right and left eyes that are drawn, or stored, in the video memory and displaying the mixed stereoscopic and planar objects (column 2 lines 48-59) where the front video signal from the reference camera, which displays the planar or two-dimensional view of the image, and the right and left stereoscopic views of the image are simultaneously displayed. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Aritake and Tatsuzawa because this combination would provide accurate imaging of polygon objects without undesired distorted parallax effects when the distance between the object and the observer changes, in which objects are clearly displayed if the user resides outside the stereoscopic range of the parallax cameras, using an imaging apparatus that does not require specific optical system or glasses thereby reducing the cost of additional components needed for the stereoscopic visualization.

Regarding claim 17, Aritake teaches that there is a 2D observing region, or planar view, which lies out of a 3D observing region, or 3D coordinate space, in which object data may be displayed in 2D (column 10 lines 17-24, Figure 7: element 36).

Claims 9, 10, 14, 15, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake in view of Tatsuzawa and in further in view of Hoglin (US Patent 5,949,477).

Regarding claims 9, 10, 15, 20 and 21, Aritake and Tatsuzawa fail to teach that the angles are adjustable in real time and are continuously and gradually varied as a result of the adjustment. Hoglin teaches that the angles of the parallax cameras are adjustable at all times by an observer (column 4 lines 45-47), therefore the angles are also continuously and gradually varied as a result of the adjustment by operations of the observer (column 4 lines 29-45). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Aritake, Tatsuzawa and Hoglin because this combination would provide the continuous adjustment of parallax camera angles in real time depending on user input thereby allowing the adjustment of parallax camera during generation of stereoscopic images resulting in an improved display.

Regarding claim 14, Aritake and Tatsuzawa fail to teach the adjustment of the camera parallax angles in real time by the geometric unit from signal input form the input unit. However, Hoglin teaches that the angles of the parallax cameras are adjustable at all times by the input of an observer in real time (column 4 lines 45-47). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Aritake, Tatsuzawa and Hoglin because this combination would provide an adjustment of parallax camera

angles in real time by a user that enables an improvement in the generated stereoscopic images due to the ability of the observer to adjust the parallax angles while viewing the image.

Response to Arguments

Applicant's arguments with respect to claims 1, 9-11, 14-17, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues on pg. 8 3rd ¶ lines 1-3 - pg. 9 1st ¶ lines 1-5 of the remarks that Tabata does not anticipate the claimed invention. However, Tabata was not provided in the above 35 U.S.C. 103(a) rejection, and the arguments are therefore moot in view of the new grounds of rejection.

The applicant also argues on pg. 9 4th ¶ lines 1-2 - pg. 10 1st ¶ lines 1-3 and on pg. 13 3rd ¶ lines 1-5 of the remarks that Tatsuzawa and Hoglin each fail to teach converting stored model object data of first objects, made of polygons having 3D coordinates, which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate to reference camera coordinate system data with its origin at a reference camera. However, Aritake was used in the above 35 U.S.C. 103(a) rejection of claim 1 to teach converting stored model object data of first objects, made of polygons having 3D coordinates (column 13 lines 50-54), to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device (column 10 lines 17-19), in which Tatsuzawa teaches the planar view is provided from a reference camera coordinate system with its origin at a reference camera (column 4 lines 33-41, Figure 7: element M).

The applicant argues on pg. 10 3rd ¶ lines 4-6 of the remarks that Tatsuzawa does not teach stored model object data of first objects, made of polygons having 3D coordinates, which are to be viewed in a planar view, however Aritake was used to teach stored model object data of first objects, made of polygons having 3D coordinates (column 13 lines 50-54, column 31 line 51), which are to be viewed in a planar view (column 10 lines 18-19).

The applicant argues on pg. 10 3rd ¶ lines 6-8 of the remarks that Tatsuzawa does not teach synthesizing the image data for right and left eyes drawn in the video memory and displaying, on a stereoscopic device, images mixing first and second objects because Tatsuzawa fails to teach stored model object data. However, though Tatsuzawa does not teach synthesizing polygon image data, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a reference camera to display any object data in a synthesized view because the generated object data is just image data, regardless of the medium used to acquire it and could be implemented in a virtual or real world environment because the cameras of Aritake are used to realistically simulate images of real world objects, therefore any benefit of the image capture of the real world objects of Tatsuzawa would be applied to computer generated objects of Aritake to obtain the same synthesized left and right video data (column 2 lines 48-59 of Tatsuzawa).

The applicant argues on pg. 11 3rd ¶ lines 1-4 of the remarks that Aritake does not teach converting stored model object data of first objects, made of polygons having 3D coordinates, which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate to reference camera coordinate system data with its origin at a reference camera. However, Aritake teaches

converting stored model object data of first objects, made of polygons having 3D coordinates (column 5 lines 25-26), which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate to reference camera coordinate system data with its origin at a reference camera, or planar view (column 10 lines 17-19). The applicant also argues on pg. 11 3rd ¶ lines 1-4 and on pg. 13 3rd ¶ lines 5-7 of the remarks that Aritake and Hoglin each independently fail to teach synthesizing the image data for right and left eyes drawn in the video memory and displaying, on a stereoscopic device, images mixing first and second objects. However, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Art Unit 2628
10/6/07

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER